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MAY
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EDITORIAL



In this month's Federal Notes you will find a brief resume of the activities at the Federal Convention where the few did so much for so many. Whether the many will approve of the work performed by the few remains to be seen.

One of the major tasks allotted to Federal Executive for the forthcoming year is that of preparing a "Uniform Divisional Constitution." This is going to be a gigantic task as it is necessary to take into consideration both the wide variations in Companies Act in each State, and the diversity of existing Divisional Constitutions. One thing stands out very clearly, before a uniform divisional constitution can be agreed upon each and every division will have to make generous concessions.

Unfortunately we are living in a world filled with suspicion and motivated by selfishness; hence we are all biased by our environment and find it difficult to believe that the other fellow is actuated by honest motives.

It is obvious that before true Federation can exist members will have to delegate sufficient discretionary powers to Divisional Councillors, Federal Councillors and Federal Executive to make any scheme workable.

The present basis under which executives of the Institute are fettered and hampered by the cumbersome process of securing

approval step by step from members generally is both unsound and unworkable. It is not suggested for one moment that you as a member give anyone a blank cheque; but rather that everything be viewed in its correct perspective. If you have sufficient faith in your own judgement in electing the right men, then surely you can trust those men to perform the task faithfully during their term of office.

The other stumbling block which must be removed to make way for Federation is "Interstate Jealousy." The continual fear by one State that another will encroach upon its precious preserves. This outlook reeks of medieval times when Barons were wicked old gentlemen who lived in castles surrounded by watery moats, and does not in any way fit in with the radio picture wherein is envisaged, upon a broad canvas, the complete elimination of boundaries, prejudices and racial differences, based upon the better understanding promoted by the penetration of the common interests of Hamdom into the far corners of the earth.

The moral of this story is — can we rise far enough above our present environment and past prejudices to make FEDERATION a concrete fact instead of an idealistic dream. The ball is in your corner!

G.G.

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SERIES PHASED AERIAL ARRAYS

By H. K. LOVE*, VK3KU

So much has been written on the subject of Directive Arrays, that one hesitates to step into this field unless it is to offer a summary of experience which may clear up some of the confusion which exists. An examination of the published data on Parasitic Arrays, for example, shows a great variety of claims for gain above a dipole. Some of these claims are fantastic, and some conservative.

The important feature from the Amateur's point of view is that all types of Parasitic Beams work in some fashion. It is feared that some of the information on this type of beam has its genesis in unbounded enthusiasm, brought about by the fact that the author has been fortunate; his location and all the other factors have been favourable, and his results excellent. We all fall into this trap at some time or another—it is the "Ham" in us!

It is no wonder, then, that when results are not as good as we expect, some of us are disappointed. The reason can, as a rule, be traced down to some unfavourable factors which were not present in the enthusiastic author's case.

There are a number of factors which govern the operation of Parasitic Arrays—some of them are as follows:—

- Location.
- Height above ground.
- Nature and proximity of surrounding objects.
- The ability to accurately tune the array.
- The method of feeding.

Some very interesting and accurate engineering data on the subject of Parasitic Arrays is found in the Radio Engineer's Handbook (Terman) beginning on page 809, para. 17.

In the main, this paragraph deals with a simple driven element, and a Director or Reflector. Examination of the figures on page 810 will reveal just how slight changes in tuning or spacing will affect the pattern.

After reading this data the Amateur will begin to look around his location and count the tin roofs and other obstructions in an endeavour to learn what chance he has of getting out in the right direction, if the antenna is pointing in that direction.

All this wordy preamble is to indicate that what the other fellow has done with a 2, 3 or 4 element beam of the parasitic variety, cannot always be repeated in another location. One may still persist and do a very nice job on such an array, but there is always the feeling that with a little more tuning and adjustment, better results might be obtained. One cannot help wondering if those non-driven elements are doing their stuff!

It is for the above reasons that the writer suggests an all-driven array for Amateur work—it cuts out a good part of the big doubt.

In the case of a long wire of several wave lengths, there is little concern by most users that the power may not be traversing all the half wave lengths included in its length—this is not one of the worries, as it well may be in the case of a multi-parasitic array.

THE MARCONI FRANKLIN SERIES PHASED ARRAY†

Such is the full name of the beam about to be described. If one took a huge loop of wire, say a wave length or so long, set it out in a circle and fed both ends from the transmitter tank, provided it was resonant and drew current, there would be little fear in the mind of the operator that the r.f. was not in all parts of the wire, because the whole loop is in series.

It is not, however, convenient to mount and erect such a contraption, but the series characteristic can be retained by another method.

†"Short Wave Wireless Communication" by Ladner & Stoner.

Keeping the series idea in mind as the first fundamental, let us add some other desirable features as under:—

- Compactness.
- Flatness of tuning on the Ham bands.
- No critical tuning.
- Substantial gain.
- No adjustment, and easy to feed.
- Correct phasing to achieve directivity.
- All elements in series, and therefore all excited.

These features—(a) to (g)—are the story of the Series Phased Beam as applied to Amateur practice.

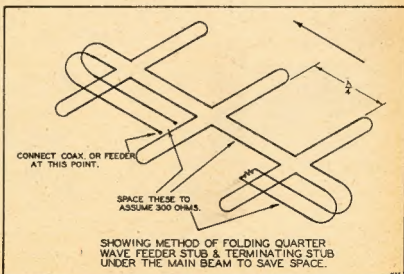
The following quotation, extracted from Messrs. Ladner & Stoner's "Short Wave Wireless Communication" will start one thinking on this type of array:

"In its simplest form the series-phase consists of a wire folded into a number of loops connected by horizontal wire lengths as shown in Fig. 132, suspended either vertically or horizontally, the



Figure 132

dimensions of the loops and the spacing being dependent upon the type of diagram required. In general, the most commonly adopted arrays are made with loops approximately one-quarter wave-



*Virginia Street, Mt. Waverley, Victoria.

length long speed a similar amount, the length of the array line being dependent upon the directivity desired. An array line will be fed from one end, usually through a short length of non-radiating feeder coupled to a normal concentric tube main feeder, the remote end of the array generally being terminated by a resistance equal to the characteristic resistance of the system, which approximates to 300 ohms.

"As will be seen later, the loops perform two separate functions; to act as radiators, and what is as important, to determine the time phase of current between loops.

"Consider an earthed vertical single wire aerial. When excited from the base, a stationary wave is formed, by a wave *W*, travelling up the wire, and a similar reflected wave *W*, travelling back. We could imagine wave *W*, travelling up the left hand edge of the wire, and the same travelling wave returning down the right hand edge of the wire, and because at all intervals of time the instantaneous values of the current waves *I*, and *I*, at the top are equal but opposite in direction, they form a node of current here.

"At other points down the wire the instantaneous amplitudes of *I*, and *I*, are not always equal, and if their values are traced out in time they will be found to form a stationary wave with current antinode at the base when the wire is one-quarter wave length long. However short or long this wire may be, a stationary wave will be formed by these two travelling waves with a node of current at the top end and current value at the bottom appropriate to the length of wire. Accompanying the current stationary wave is a voltage wave in quadrature time phase with it and with an antinode at the top end.

"If instead of providing a single wire we provide a loop of wire, Fig. 133, fed at the lower end, 'A' say, this loop being part of a circuit in which a travelling wave is flowing, the wave will now travel up one wire 'AB' and return by the second 'BC' from which it continues on in the circuit, but provided these wires are sufficiently close together to be regarded as coincident in space from a radiation point of view, the loop may



Figure 133

be regarded exactly as a single wire carrying a stationary wave with current node at 'B.' These two travelling waves not only form a stationary wave of current with node at top end and (if the loop is $\frac{1}{4}$ or less) an antinode at the bottom end, but in quadrature time-phase with the effective current stationary wave there will be a voltage stationary wave, having an antinode at the top end and a node at the bottom end. The voltage does not reverse in sense at the top, and in consequence, no node is produced, whilst at the bottom of the loop the voltages are always equal but opposite in phase.

"The radiation resistance of the loop will be four times the radiation resistance of a single wire for the same base current measurement in each case. This is so because a meter placed at the base of one limb of the loop is measuring current in one limb only, and this is half the effective stationary wave current at the base, as the currents add to this point. This means virtually that the effective height, and in consequence the radiation efficiency of this portion of such a system is high. For this reason, an array built with loop radiators is equally suitable both for transmission and for reception purposes."

Messrs. Ladner & Stoner deal, in the main, with the "Series Phase" as a commercial curtain, and cover the maths, and theory considerations fully. It is the purpose of this article to summarize the application of this system to Amateur use. At VK3KU the beams for 28, 50 and 144 Mc. are all series phase, and on 28 and 50 Mc. have done a wonderful job. It should be remembered that no tuning or adjustment has been done on these beams—they simply work!

It will be seen that Fig. 132, ex Ladner & Stoner, forms the basis of construction of Fig. 1—the Amateur application for 28 Mc.

The beam construction for Amateur use is two beams mounted horizontally—see Fig. 1.

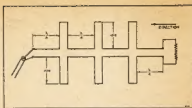


Figure 1

As the loops on each side of the beam represent a $\frac{1}{4}$ wave out and $\frac{1}{4}$ wave back, each loop is $\frac{1}{2}$ wave length, and this, added to the corresponding loop on the opposite side, makes each element a folded full wave. Since all loops are in series, each is excited.

The loops, therefore, perform two separate functions; to act as radiators, and what is quite as important, to determine the time phase of current between loops.

A further extract from Ladner & Stoner will make this clear:—

"Consider Fig. 134 (a), which shows two radiators 1 and 2 spaced one quarter wave length apart and connected by a feeder line. If this system is fed from a point 'A,' half-way between the aerials, zero time phase is supplied to both aerials, but if we move the feed point to 'B,' this automatically creates a time phase difference between 1 and

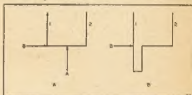
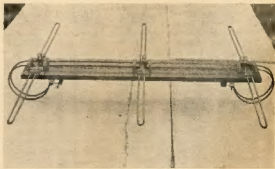
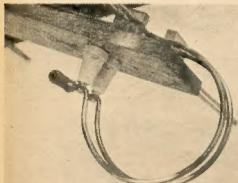


Figure 134

2, equal to the space phase between them, assuming the radiated wave travels to the right at the same velocity as the wave along the feeder. In this case maximum directivity is away from the feed point 'B.'

"Still keeping the feed input at 'B,' we can reverse the diagram by looping the feeder to give aerial 2 a lagging



Above: Complete Series Phased Three Element Beam for 144 Mc. showing Stubs turned under.

At left: Terminating Stub on 144 Mc. Series Phased Beam.

current of 90°. To do this the feeder length can be increased as shown in Fig. 134 (b), such that it equals (360° - 90°) or $\frac{3}{4}\lambda$. If we design the loop to have $\frac{1}{4}\lambda$ sides as shown, this loop, together with the straight portion of $\frac{1}{4}\lambda$, makes up the $\frac{3}{4}\lambda$, and as we have seen, if the sides of the loop are coincident in space, the loop itself will act as a radiator; in consequence, we can use it not only as a phasing feeder to aerial No. 2, but to replace aerial 1. In a similar way the whole line of radiators can be replaced by loops, whose lengths are made correct to produce the required phasing between the radiating elements. This is the usual series-phase array design which therefore has maximum directivity from its feed end, and it is clear that with this particular spacing we could not reduce the dimensions of the loops sufficiently to reverse the diagram, i.e. by producing a time phase equal to the space phase as the loops would then have zero dimensions.

"But we can obtain this reversal by increasing the loop still more, namely to $\frac{5}{4}\lambda$, as in this case the total feed length is then $1\frac{1}{4}\lambda$, and this gives the required time phase."

It is not intended, here, to go further into the theory of this type of array, as Messrs. Laddner & Stoner have treated this at great length. It is therefore intended to give some pointers on the construction of a Series Phased Array for the practical Amateur bands.

The beam is practicable on the 14, 21, 28, 50 and 144 Mc. bands. The dimensions are easy to compute by any formula for $\frac{1}{4}$ wavelength. It has been found that the beam is very suitable to work over quite wide areas of the bands, with little loss of efficiency, and on this account the intending user is advised to cut the $\frac{1}{4}$ wave sections for a frequency at the centre of his operating frequencies. The $\frac{1}{4}$ wave stubs for feeding and termination can be folded back under the framework of the beam, and accordingly do not add to the length of the structure. The $\frac{1}{4}$ wave feeder is made up of open line, with spacing and conductor diameter to make a 300 ohm line. This can be done with tubing or with wire, provided the spacing is suitably adjusted to 300 ohms.

The loops or elements are best made of $\frac{1}{8}$ " tubing, or can be wires folded back round insulators if desired.

It will be seen that for 14 Mc. a two element beam is not by any means too big. Such a two element affair will have

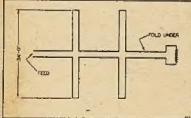


Figure 2

four driven $\frac{1}{4}$ waves and will occupy approx. 34" x 17" 6" (Fig. 2). A three element for 28 Mc. (6 half waves) will take a space of about 17" x 16".

The method of mounting the elements on a wooden frame, whether it be a tubing structure or wire, is left to the intending user.

The spacing between centres of the folded back tubes or wire should be quite close; in the case of tube, a space not in excess of $\frac{1}{8}$ " between the adjacent walls will be about right. If wire is used, a space of approx. $\frac{1}{4}$ " between centres of the wire will do well—but care should be exercised when the construction is designed that the wires are held apart and do not touch in a high wind. Liberal use of insulators or small spreaders should serve well to achieve this.

The Termination.—The beam may be left bi-directional if desired, or made uni-directional by a terminating resistor of 300 ohms of a non-inductive type.

The Beam In Use.—The feeder can be almost any type of line—open or co-ax.—and the feeder stub, which is 300 ohms $\frac{1}{4}$ wave, will take care of the matching to the array in much the same manner as Q bars. Should 300 ohm line or cable be available, this may be used right down to the transmitter tank.

Results obtained with this beam indicate that it does a first-class job. There are numbers of beams—the description of which, together with the theory and data, would tempt some of us to endeavour to use them, but unless one has the facilities to ensure perfection of the theory, it may be better to leave them alone.

When all is said and done, most of us are after R5 reports, and we also like something round the S8. With the limited power the Australians use, the S section of our reports must come from getting as much of the r.f. from the tank into the flat top as possible.

The improvement of our signal strength from, say, S8 by power increase

can be expressed in the following terms: To raise an S8 signal to S8.5 requires that we multiply the power by two. To increase our signal by one S unit, i.e., 6 db. to S7, the power would need to be multiplied by four. One can go on doing sums like this to see how many times the power must be increased to gain the additional signal points, but it is the power that reaches the flat top which does the job.

If equipment is arranged with 100 watts input to give 60 watts output in the tank, all well and good, but only 15 of the watts reach the radiator, we are not getting very far. What we all desire is the use of as much of that 60 watts as possible in the radiator—pushed in the desired direction—that of the receiving station.

TIPS FOR PRACTICAL CONSTRUCTION

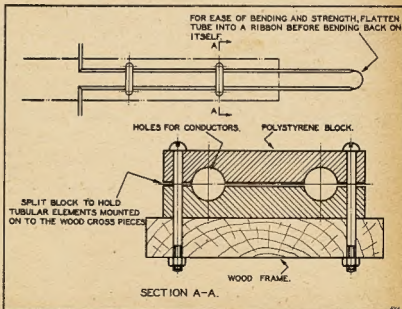
It is strongly recommended that the beam be fabricated of $\frac{1}{8}$ " copper tubing in the case of 28 Mc. beam, or $\frac{1}{4}$ " copper tubing in the case of 50 Mc. beam.

Reference should be made to "Amateur Radio," July, 1947, page 5, for the impedance versus spacing diameter curve for conductors to ensure that the quarter waves between the elements are arranged to assume an impedance of 300 ohms.

The folding back of each element which is a half wave folded back on itself, should be accomplished by hammering it flat at the centre point which makes an easy method of bending and strengthens the whole job, as instead of being a bent tube it is a ribbon of flat metal.

The builder is advised to braze the tubing into one solid grid to ensure that the beam is in complete electrical contact throughout its length.

The method of mounting is to make a (Continued on page 8)



The BC696 and BC457 Transmitters

By F. M. NOLAN*, VK4FN

The BC696 and BC457 Transmitters can be very simply converted to make excellent v.f.o.'s. for the Amateur bands. Before commencing the description of the alterations necessary to convert for Ham use by VK4FN, the following description of the units is reprinted from "CQ," May 1946, to acquaint the reader with their operation.

An increasing amount of surplus Army equipment is appearing on the civilian market. Among various items of interest to the Radio Amateur is the SCR274N, an aircraft unit that is very easily adapted to Amateur use as a stable, variable-frequency oscillator (v.f.o.), either for a.m. or f.m. operation. The SCR274N is the overall designation given the principal components of a multi-channel aircraft radio receiving and transmitting set-up used on thousands of planes and now "declassified." So that the reader may know what to look for, the army numbers of the equipment are as follows:—

The receiving end consists of three separate units—the BC453 (190-550 Kc.), the BC454 (3 to 6 Mc.) and the BC455 (6 to 9.1 Mc.). These receivers operate from the aeroplane 24-28 volt storage battery and each contains a separate dynamotor for plate power. It is an easy matter to substitute 6 volt tubes for the 12 volt series type originally in the receiver, and re-wire the filament string for parallel 6.3 volt operation from a standard filament transformer. (Alternatively, a 24 volt transformer may be used to energise the heater circuits with the receiver left as is.) Any light 250 volt receiver power supply will provide plate power for the sets, or a vibrator pack may be used if mobile operation is contemplated. These receivers are very sensitive, incorporating an r.f. stage, b.f.o. for c.w. reception, and, all in all, make excellent receivers up to approximately 10 Mc.

Four separate transmitters are included in the sending unit. The BC696 covers 3 to 4 Mc., the BC457 from 4 to 5.3 Mc., the BC458 5.3 to 7 Mc., while the BC459 tunes from 7 to 9.1 Mc. Each transmitter consists of a master oscillator tube (1626 or 12J5) exciting a pair of beam tetrodes in the power amplifier stage (1625 or twelve volt 807s). The tubes in the amplifier are connected in parallel. The master oscillator and r.f. power amplifier tuning capacitors are ganged, and an excellent worm drive, with plenty of reduction, is incorporated in the dial system. Included in each transmitter is a piezo-electric crystal and an electronic resonance indicator for calibration.

The power output may be varied from a few watts to approximately 55 watts according to the power supply on hand. Thus, one of these little jobs may be used as a fixed variable-frequency

transmitter or as a driver for a higher power amplifier.

The components are of exceptionally high quality and the assembly rigidly constructed. With a stabilised 200 volt supply to power the master oscillator, the drift is very small. This equipment was designed to hold the frequency quite constant in aircraft under vibration and extreme temperature changes; so it can be understood that the frequency variation will be practically nil with the set mounted on the operating table, subject to little vibration and relatively constant temperature.

A power supply, preferably a regulated 220 volt unit, is used to power the master oscillator—while anything from 200 to 550 volts, unregulated, is suitable for the amplifier, depending on the desired power output.

The dial is very closely calibrated and a crystal resonator is used to check the calibration. This is very simply observed by tuning for maximum indication on the electronic eye tube and then noting if the dial reads exactly the crystal frequency. The transmitter is then calibrated over the rest of the dial. This crystal does not stabilise the frequency in any way—it is merely a built-in standard to check the master oscillator dial setting. A crystal of another frequency could be substituted—for instance one spotting a particular net or net operation frequency. This would enable the operator to place himself exactly on a particular frequency in the band.

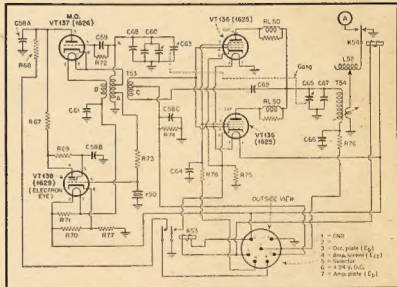


Fig. 1. Original schematic of the BC458 (5.3 to 7 Mc. with a bit of leeway).

The following parts are identified:—

C58A, C58B, C58C—0.05 uF.
C59—0.00018 uF.
C60—master oscillator padding
C61—0.005 uF.
C62—fixed neutralising
C63—master oscillator tuning
C64—0.002 uF.
C65—power amplifier tuning
C66—0.01 uF.
C67—power amplifier padding
C68—3.0 pF.
C69—50 pF.
C70—transmitter selector relay
C71—transmitter output relay

L52—antenna loading coil
R67, R72, R75—51,000 ohms
R68, R76—20 ohms
R69—megohm
R70—1,000 ohms
R71—126 ohms
R73, R74—15,000 ohms
R77—390 ohms
R78—51 ohms
RL50—parasitic suppressors
T53—oscillator coils
T54—amplifier coils
Y50—crystal unit
P50—7-prong female plug, outside view.

* "Fran-Reen," Dawn Street, Stafford Heights, Queensland.

RE-WIRING TO USE AS V.F.O.

A number of members have procured either the BC696 or BC457 Transmitters from Disposals, and desire to use them for v.f.o. operation and it is proposed here to outline the steps taken by the writer to put them in operation as v.f.o. units.

Being fortunate enough to have access to a handbook on the SCR274N equipment, of which these units form part, a study was made of the circuit details from which was learnt that the oscillator coil has three windings (see Fig. 1), one being the usual electron coupled oscillator winding which is tapped and connected through a resistance to the grid of a magic eye tube which is used as a crystal oscillator for calibration purposes. Another winding couples the output of the oscillator to the p.a. tubes which are connected in parallel, this winding being centre-tapped, one side going to the grids of the p.a. tubes and the other to the neutralising condenser, while the centre-tap returns through a bias resistance to earth. The third winding is placed in series with the heater of the oscillator tube.

To make the alterations necessary for use, turn the chassis upside down with the oscillator tube and magic eye to the rear. On the left-hand 1825 tube socket pin No. 1 has three white wires connected to it. One of these can be seen going to the front of the unit, one towards the rear and the third towards the right-hand side. Disconnect the wire going to the front of the unit and also the one to the right and connect

both to socket connection 2 which is spare.

From pin 7 of this same socket disconnect the white wire and reconnect to pin 1, from which the two other white wires were removed. Next bridge pins 2 and 7 together and run a wire across to pin 7 of the right-hand 1825, this change having placed the heaters in parallel and completed the circuit for the control relays which control the h.t. and stand-by circuit as well as the antenna switching which is the output terminal for the new v.f.o.

To place the oscillator and magic eye heaters in parallel disconnect and remove the resistor mounted on the rear wall of the chassis at present connected to pins 2 and 7 of the magic eye. Disconnect also the 1 watt resistor connected between pins 2 and 8 of this tube, and remove the white wire from pin 7 of the socket and re-connect to bottom left-hand pin of the power socket (pin No. 6). Now bridge pins 1 and 7 of the magic eye socket and earth to chassis. This completes the work under the chassis leaving a few alterations "upstairs."

Remove the antenna coil and from the connection on the tank coil where the T.C.C. wire from the antenna coil was connected and run a new wire to the antenna terminal via the relay contacts. The needs of individuals may be varied at this point. At 4FN the antenna terminal was removed and a co-ax connector substituted, also the relay contacts were not used.

All that remains is to connect a power supply to the socket, with 12 volts d.c.

via switch to pin 5 of power plug to operate relays and the unit is ready for operation, the rest of the supply being 12 volts a.c. for the heaters, 250 volts d.c. to the plates of the 1825s, 200 volts to the screens and 105 volts to the oscillator, stabilised by a VR105/30.


Tune the main dial to the crystal frequency and switch ON, giving the unit about 30 minutes to settle down. Note whether the magic eye shadow is wide (i.e. 90°), if not the oscillator is not tuned to the crystal; to adjust, slide back the small cover on top of the unit giving access to the oscillator adjusting screw in the coil box. Carefully adjust until the eye angle is 90°.

The units in use here have proved to be very stable and, as could be expected, have octave of output. The output in fact is somewhat embarrassing and it is proposed to remove one of the 1825 tubes and re-adjust for single tube operation. This calls for a change in the grid bias resistance and an adjustment to the neutralising condenser which will be found on the right-hand side wall of the unit. This job however is not a difficult one. (Another alternative is to cut the h.t. supply to the tube and leave it in, which would not upset neutralising and only call for a change in bias.—Ed.)

CONVERTING TO TAKE 807s

If a unit has been purchased which has no valves, it may be more convenient to use 6 volt filament types. The 1825 sockets can be easily altered to take 807s as follows:—

Remove the "U" shaped springs from pins 1, 2, 4, 6 and 7 on each socket, and then bend contacts apart slightly.



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Estab. 1911

A small rat-tail file can now be inserted in the socket holes and the insulation filed. Holes 1 and 7 are filed half the diameter of an 807 socket pin in the direction of the centre of the socket. Hole 4 is elongated equal to its own diameter, also in the direction of the centre of the socket. Holes 2 and 6 are filed equal to their own diameter, in the direction of hole 4.

After checking to see the 807 fits correctly, replace the socket springs.

In the original 7 pin sockets, pins 2 and 5 were used as tie points, having no connection to the valves. It is therefore necessary to remove the plate resistor from its tie point on pin 2 of the right-hand socket, and connect direct to its by-pass condenser. On the left-hand socket the relay leads connected to pin 2 (in article), are shifted to pin No. 7 and the strap between pin 7 and 2 removed.

The screen leads which were on pin 3 of each socket are re-wired on pins 2.

BAND SPREADING

The degree of spread on the Amateur bands can be increased by placing a fixed capacity in series with the oscillator and p.a. tank condensers. These condensers must have the same value to retain tracking. Values of 100 pF. give a good spread and should be good quality mica condensers, the oscillator condenser being a zero coefficient ceramic preferably. The 7-7.2 Mc. band occupies about 90 degrees of dial space on the 5.3 to 7 Mc. model with the series capacity specified.

Series Phased Aerial Arrays

(Continued from Page 5)

main boom according to the circumstances and the room available and provide cross numbers of light, strong timber and attach grid which is supported by a number of polystyrene split blocks. This holds the whole grid of tubing rigid on to the wooden frame and the method of rotation is one of normal practice and must be left to the intending builder's imagination, his circumstances and his pocket book.

Reference is made to the method of folding the quarter wave feeder and terminating stubs back under the beam to save room. This in no way affects the behaviour of the beam. It should be remembered that the direction of propagation is back over the feeding end of the beam when it is terminated with a 300 ohm resistor.

A TWIN RIBBON SERIES PHASED BEAM

Reference to the drawing of the Series Phased Beam will suggest that there are more ways of filling a pig other than choking him with butter. There is available these days, twin ribbon feeder cable in various impedances. It is suggested that the feed from the transmitter tank could well be in 300 ohm ribbon and the elements of 80 ohm—the feed between each section to be also of 300 ohms.

The whole could be laid out on insulators on a wooden frame and would be light and effective. The feeding stub

need not be used as the 300 ohm ribbon will eliminate the necessity for its use. A quarter wave of the same 300 ohm cable can then be used as the terminating stub and this may be very conveniently folded back under the beam. If a bi-directional beam is desired, this too can be dispensed with altogether.

FEEDING AND BALANCE OF BEAMS

One of the most important subjects which Amateur transmitters should give attention to is the matter of feeding. The old idea of stuffing a few turns into the tank should be avoided. This practice almost invariably results in capacity coupling and if the case is bad may result in the beam and its feeders acting as a Marconi radiator against ground or the electric wiring system.

An aerial tuner should be used in all cases. This will ensure good results, by elimination of standing waves, b.c.i., etc., and above all reduce the losses in the system, thus ensuring maximum energy in the radiator.

The reader is strongly urged to read "Parallel Standing Waves," by W3BLZ, in "QST" of Jan. 1948, page 45. Application of the suggestions contained in this useful article will help towards the objective.

ALTERATION TO V.H.F. BAND

As a result of negotiations between Federal Executive and the P.M.G.'s Department the band 144 to 148 Mc. becomes available for exclusive Amateur use as from the 1st May, 1948. This band replaces the 166 to 170 Mc. band.

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"HOW TO LOSE FRIENDS"

By E. A. Charles, VK5YQ

Before proceeding I would like to apologise to all those to whom I caused unnecessary QRM in 1947. I refer in particular to those nightly 14 Mc. phone cross-town long-winded inane ragschews. It shall not occur again.

Good operators are the result of successful experience. It takes some a lot longer than others to catch on. Instead of complaining, let's try and help the other guy learn a little more rapidly.

THE SECRET OF SUCCESSFUL DX IS THE ABILITY TO VISUALIZE THE SITUATION AT THE OTHER END AT THE TIME!

To illustrate I will quote two examples. The first, Friday evening, 2nd January—VK-ADX v.Lo's. onto WJ3CR's frequency and answers his CQ, with about 50 calls before giving his own. By some miracle he is partly heard by a greater miracle, answered WJ3CR. Apparently his is the only call and goes over. Back comes ADX (who obviously didn't get this), "you're Readability 5 and Strength 8 to 9 old man!" Neither are heard again.

Here is what ADX obviously does not know. W's phone band is 14200 to 14300 Kc.; there are quite a lot of American stations licensed. He was lost in QRM before he started. Any station that calls very long without giving his own call is automatically passed on.

When the Ws aren't coming through it is nice to move into their phone band to be clear of QRM. However, how many of you give it real thought—if you listened with a little more interest you would most likely hear some VK4 or VK6s working them. So you don't QSY there to give them QRM unnecessarily.

If you don't know how the bands are used, ask someone—that's how we all learn.

Second example, Saturday afternoon, 3rd January—VK2OQ contacts T2IOA from about 14 Mc above his frequency. VK-JP was there, over-modulating and v.f.-ing onto each South American as he appeared. I did hear T2IOA go back to JP as —JC-JP, but at that time, T2IOA had called CQ at S9 plus. Before VK2OQ had finished, JP is on his frequency frantically calling again. They have another over—at least T2IOA does—then JP calls again despite the fact that Otto had said he was looking for VK353. Noting the absence of the VK3, I picked a frequency a little clear—lower than the above splatter, and contacted T2IOA. But did I hear his final? No! JP was on him again calling! I pulled the switches in disgust! But I'll bet he didn't get that QSO.

The correct thing to do—picture yourself at the other end—would you answer a station that rudely interrupts your conversation? You'll tune away to someone in the clear. Simple, isn't it?

Unfortunately some people let their enthusiasm over-ride their better judgment. What if you do make the DX

Century Club in record time, you'll lose your good name in the process. DX will always be with us.

Most people call far too long. Admittedly some stations have HRO receivers with 40 degrees of bandwidth, but a chappie usually first tunes the end of the band on which he himself is operating. Put yourself at the other end. OK—if you are on the opposite end of the band, wait until you think he has reached there, and call briefly. You have saved wasted calling should he find someone on his end of the band. Personally I always specify at the end of a CQ just from which end of the band I shall commence to tune. And when I answer (invariably in the case of VK contacts), I call no more than six times, sign and listen. If he doesn't come back, I wait until I think he has tuned to the other end of the band, then call briefly again.

The QSO itself. Unless you have something unusual in the way of antenna, receiver, or circuit hook-up, the other chap doesn't want to know—he's far more interested in the way his own rig is performing. However, he does like to see how the antenna and power relate compare. If he is new, you may be able to help him overcome a spot of bother which concerns him much more than the DX you are itching to boast about. And please don't talk for the sake of talking to the "great unseen audience." There are lots of listeners who aren't "wireless cranks." Remember, your operating style is a fair indication of your character!

Then there's the matter of giving information. It pays to be sure of what you say—we can all make mistakes at times. The other chap will undoubtedly look it up and/or try it out—and undoubtedly change his opinion of you. Why not quote a reference—"I saw it in so and so." After all there are few of us but who know something that isn't to be found in a book somewhere.

This "Hi-Hi" business on phone. To those who must punctuate each sentence with this method, why not break the monotony by using a few "Hee-Hee," "Ho-Ho" and "Haw-Haw's" if you can't laugh naturally. Granted a normal guffaw could be lost in QRN when working an XU or KQ

"NEVERMORE QUOTH THE RAVEN"

By "Damocles"

Great game this Ham racket—been in it a long time haven't you—all of ten years or so—know all there is to know—and don't hesitate to air the vast fund of knowledge Big authority and all that. You are Mr. Ultra-Modern Era phone-man, yes, you can punch a kev too, but you only do that on occasions; knowing that if what you sent in "the clear" reached authority, there might be storm clouds on the horizon.

No, you aren't in the radio industry, but you gave that other VK an ear-bashing about what he should do. He couldn't be expected to know over-much

—he is only a lab. technician with one of the latest radio engineering concerns. You couldn't be expected to know either that he was modest enough to pass your gab, in one oreille and out the other, but you know more than him; you just read it up in the Handbook in the long-suffering boss' time.

Yes, a plausible make technique sure impresses that new Ham, but depend upon it that he will find you out, perhaps sooner than later. Your station is a beacon light in the wilderness of dead-heads on the band; your "audience" awaits your advent with bated breath. And then, l'enfance magnifique! Wise-cracking, "Smart Alec Comebacks" and sepulchral "Heh, Heh, Heh's" of the kind that infect your imitators so profoundly. This is the stock-in-trade, and this is the Era of Progress; of speech and still more speech—ad lib-ad infinitum—and to the devil with the monkey fancey.

Fancy any poor mutt wanting to really use c.w. and to waste time thusly. Besides, how could the girl friends be impressed if they couldn't hear those dulcet honeyed tones. And when they visit your shack, which is so often, what more fitting than they be duly impressed with "Rasaasers" and "Brrrrrreaks"—with a few Wilco's thrown in for good measure. This is your superb wizardry demonstrated.

Atmosphere is provided by gurgling liquid sounds, clinking glasses and thinly veiled innuendoes, so full of zest. The audience there and "on the air" are rocked to the foundations. It is fitting to inform the world at large that you suffer from "hangovers" as a result of "sessions." It is the very pinnacle of good taste that excludes from your microphone any of your dumbly imagined. It is impressive to yap in staccato phrases, inferential tones and ill-concealed riddles—transparent in fact to anybody with the smallest IQ. There are lots of fellow-hams that you don't like on the air—but you don't tell them so directly—they mightn't be so complacent about it. The technique is direct reference with an under-current of spreading ill-will far and wide. But the picture that "he who throws mud must expect some to stick to himself" is just as true in this Amateur Radio game as in other walks of life. And sometimes prodded worms turn out to be angry lions.

Far better is it to accept this erstwhile pleasant hobby of Amateur Radio as a hobby—for that after all, is just what it is—nothing more or less. When individuals make it a medium for antagonism between fellows, then it becomes something else—and even the proverbial Raven would be averse to it.

And of which is to draw attention to the unpleasant fact that there are instances of phone operation on our bands that would be better eliminated—for the good of the hobby. These are casual observations, they mention no specific individual, the only offence likely to be taken is by those with guilty conscience. There are phone merchants of the ilk portrayed among us but they are in the minority. But a cancer starts with a minor ailment!

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SPECIAL ATTENTION GIVEN TO COUNTRY MAIL ORDERS.

KINGSLEY NARROW BAND F.M. ADAPTOR

This unit consists essentially of a limiter and a discriminator, the purpose of which is to permit reception of frequency modulated transmissions.

Any Communications type receiver with a 455 Kc. i.f. channel as the final intermediate frequency may be adapted for f.m. in this way. "The New Look" type of final low frequency i.f. channel (to steal a term from "QST") would of course be the wrong i.f. frequency, but how could one receive f.m. phone with an i.f. pass band with this form anyhow?

The adaptor, which is illustrated in the Kingsley advertisement in this Magazine, uses a 6J5 as a cathode follower, connected directly to the secondary of the final i.f. transformer and due to the small loading effect of the well-known cathode follower system, the alignment of the i.f. transformer is readily restored by a very minor adjustment to the secondary trimmer or tuning core. In order to take the best advantage of the cathode follower, the adaptor is designed to plug directly into a six pin socket which is to be mounted on the rear of the receiver chassis, as close to the output of the i.f. channel as possible and as the other connections to the receiver circuit are made. The supply and audio frequency input, these lead lengths are relatively unimportant.

From the cathode follower 6J5 via resistance-capacity coupling we go to the 6SJ7 limiter. This stage is the conventional grid leak, low plate and screen voltage connection, and in the limiter plate circuit is the special balanced discriminator transformer which in turn looks into a 6H6, using the Foster and Seely discriminator circuit. This discriminator transformer has a litz wire wound primary fitted with an iron dust pot and tuned with an iron dust core to 455 Kc. The secondary is a balanced winding in two sections and is padded with a fixed silvered mica condenser and tuned with a 3 to 30 pF. trimmer.

The discriminator output is taken via a coupling and filter system to the audio frequency input to the receiver and this is an efficient and convenient place for the switching to be made from a.m. to f.m.

In fitting this adaptor unit, the input to the a.f. gain control is opened and both the output from the original a.m. detector and the input to the a.f. channel are run in shielded wire via the socket at the rear of the chassis into the adaptor to pick up the output from the f.m. detector, then along to a switch, to be used in a convenient place on the front panel of the receiver. Thus once the unit is installed and the two trimmers peaked to the i.f. frequency, the simple operation of a single pole double throw toggle switch, changes the receiver immediately from a.m. to f.m. reception.

BRITISH RADIO COMPONENTS MANUFACTURERS' EXHIBITION

Federal Executive received an invitation to attend this Exhibition, and as readers will realise it was impossible for a member of F.E. to accept this invitation, Federal Executive requested Mr. Ken McTaggart (VK3NW/G3CUA), who is at present in England, to represent the Wireless Institute of Australia.

Ken duly attended the Exhibition and the following is an extract from his letter, and we have no doubt that readers will find it interesting.

"This is just to let you know that in due course I attended the Radio Components—Manufacturers' Exhibition at the Grosvenor House Hotel and found it of very great interest. Under separate cover and by ordinary mail, I am sending you one of the small "guides" to the exhibits which will give you some idea of the number of exhibitors and the variety of components on show, and also a couple of leaflets which describe some new departures in the design of speakers which I thought of special interest.

"It would be impossible for me to describe even a fraction of the good things I saw. This country appears to make every imaginable component nowadays, and the quality seems of a high order. Unfortunately in the shops the prices are rather too high and many things are in short supply, but that does not alter the fact that the manufacturers here are wide awake and out to produce the goods.

"I might mention in particular the very fine ceramic mouldings that are made for switches, valve sockets, condenser insulating, standoffs, and so on; the variety of plastic insulated cables including the wide range of 'twin lead' of various impedances, and co-axial cable from approximately $\frac{1}{4}$ " diam. up to over an inch; a wonderful assortment of relays of all descriptions; speakers from 2" to 20" and larger for public address work—including the new speakers described in the pamphlet I have sent which are from $\frac{1}{4}$ " to 8" diam. and only $\frac{1}{4}$ " to $\frac{1}{2}$ " deep, very useful for portables, mantle models, etc., and anywhere where space is at a premium.

"This country is also producing splendid meters of all kinds, also a wide range of microphones, while fixed condensers of various sizes and tolerances (down to $\pm 0.5\%$) and finished in 'lacker', 'manufacturers' semi-tropical', and 'fully tropicalised' finishes make one's mouth water.

"I could go on like this for many pages but it would not tell you a great deal. To summarise, I would say that things are booming here and England is producing radio gear equal to any in the world and better than most. Thank you once again for sending me the invitation.

"Yes, I see Elgar Treharne periodically and have passed on your 73. He maintains regular contact with his father 2BM and seldom misses a morning. I

have not been so fortunate, but have contacted a number of the boys including 3YP, 3BZ, 3CZ, 3XU. Also some VK2s, 4s, 5s, 7s, and one VK6 I have been on 58.5 Mc. quite a lot and find conditions there very good with much more temperature inversion than we get in VK3, enabling work from 50 to 200 miles to be done quite regularly. 50 Mc. has now faded out again, and unfortunately I was not able to get on during the excitement. However I may be able to do something in the summer before I leave here.

"I get the Mag regularly—although belated—and am very glad to see that the 50 Mc fellows are keeping up the good work with field days, Spor. E and so on. One reason for wanting to return is to take part in those most enjoyable outings to the hills!"

FRENCH EXPEDITION TO THE ANTARCTIC

It will be recalled that Monsieur Yves Valette, who is mentioned, was a guest at a recent general meeting of the Victorian Division and spoke of the proposed French expedition to the Antarctic during a short address to members.

Monsieur Valette was accompanied by Monsieur G. B. Perronne, Commercial Secretary to the French Consulate in Melbourne, who approached the Victorian Division of the W.V.A. in making the initial enquiries concerning the possibility of the French expedition maintaining constant radio contact with Australia.

The following article appeared in the Melbourne "Age" on Saturday, 3rd April.

"France will send a well-equipped scientific expedition to the Antarctic at the end of this year. It will be the first French party to visit the Antarctic since 1809.

"M. Yves Valette, a French engineer, received a letter from the French Government confirming the plan to send an expedition southward when he stepped ashore at Williamstown on Friday, 2nd April, from H.M.A.S. LST3501, which returned from the Antarctic. He will be one of the leaders of the expedition.

"M. Valette has had wide experience in the north polar regions, and 'lumbered' up with a 300-mile trek on Spitzbergen before he flew out to Australia, to accompany the Australian party to the south. He is a champion skier.

"He went to the Antarctic in H.M.A.S. LST3501 to study conditions and make an advance survey for the French expedition.

"M. Valette said the expedition would go southward in minesweepers used during the war by the Free French. He said the party would include meteorologists, geologists—who will look into the rumor that uranium ore is available in the Antarctic—and cosmic ray experts.

"All the details are being worked out in Paris," he added. "It will be a most important expedition. We must establish our claim down there." The French party will sail from Australia."

Compiled by VK3QO, to whom all contributions can be sent

DX ACTIVITIES

Max BBQ took a little holiday on the 20th and 21st of March; while he was away someone turned on his 50 Mc receiver and heard what they took to be ZL4BT, but did not make a note of it! About three weeks ago SBD had a contact with 4ZU, a ship (and, out on U.S. 11th over Next was on 4ZU on 50 Mc. 24BT and 2LY on same wavelength. SQR worked 2BR, 2LY and 2WJ, 49 hours

[illegible]

The VHF group, which meets at Seaside House on the second Friday of each month, re-elected its officers this month (April). The president, Mr. J. H. G. Smith, was re-elected for a second year. The March meeting took the form of an informal "free-for-all" discussion on many subjects, and the members were brought to the attention of those of outstanding interest were brought up by Messrs. McDowall (212Q) and McDonald (212AP). Mr. McDowall spoke on the subject of "The Design of a Receiver," and Mr. McDonald outlined some experiments he has made on the subject. Mr. McDonald detailed a novel construction of a variable capacitor, which he has proceeded an FC135 mixer oscillator, and the grid amplifier for each valve by a means of a condenser of sufficient capacity to give a power loss of between 10 and 20 per cent. The cost of the circuit is in the range of \$8.43, thus giving a 11 Mr. F. Smith a head. The result is a converter giving a 100% conversion ratio, and a 100% efficiency in the output band switch. Both these gentlemen have agreed to write articles on their respective subjects for publication in "Amateur Radio," and it is to be hoped that they will be published in the near future.

Mr. John Fry of the CSIR, Radiophysics Laboratory, was to have addressed the April V.E.P. meeting on the subject of V.E.P. Receiver Design, but unfortunately developed appendicitis at the last minute. His place was ably filled by Mr. Bird, who spoke on the subject of antenna arrays giving 360 degrees, low-angle coverage, with horizontal polarization. This lecture was of great interest (mainly to those having access to large quantities of brass tubing!) and Mr. Bird kindly consented to write an article on the subject for "AR."

At this meeting a discussion was opened regarding vertical versus horizontal polarisation for opening the 144 Mc band. After considerable discussion, it was decided to recommend that HORIZONTAL polarisation be regarded as "standard". At the same time, it is realised that vertical

In order to stimulate use of the VHF bands, it has been decided to organise a contest. A committee has been appointed to consider the form the contest is to take, and to formulate rules, etc. Details will be published at a later date.

The Radio Research Board who are concerned with ionospheric soundings and predictions, have expressed an interest in long distance and unusual propagation conditions on v.h.f.s. It is stressed that normal contacts are of little value and the required information is as follows:—

Date, Frequency, Direction of Signal arrival,
Distances between Stations, Signal Strength,
Time coming in, and Time fading out.

Mr. Curroughs (VK2AXB) has agreed to act as "clearing house" for reports as above, and it is requested that reports be addressed as follows —

Mr. Curroughs, c/o Court House, Newtown,
N.S.W.

Once again members using the 50-54 Mc. band and those planning to use it, are urged to utilize the high frequency portion of the band, and to sign off, at least on c.w. Commercial interests have their eyes on the 50 Mc. band and will have a very strong case if the section from may 50 to 54 Mc. is not used by Amateurs. The recommendation to use c.w. is prompted by the fact that weak garbles are often heard, but cannot be identified on phone, whereas if c.w. were used it might open up DX possibilities.

VK3YA at Collins (90 m.le.) in dr through several times on edge nights in the last month. He works as member of the Melbourne team at 5678 being a strong w/e one leg of a V beam tried a few times but gave up no better.

VK3YB at Maracra (90 m.le.) get good signals from one another VK3Z (Ballarat) has been busy trying out different converters, but finds his old set the best. Runs a regular sked with 3HRX at Sileham. 3HRX goes AVL with 3HRK's beam 135 ft. above ground. 3HRK's beam is 100 ft. above some tall trees or other. 3RR has been trying out a six element beam at Maracra. 3SRV gave him 90 plus 24 db off front end SR, broke GS, giving a hint to back at 48 db (right 8 points). Dicky still not satisfied and thinks he can do better!

VXP is in addition to 50 Mc band using 100 watts to p.p. 806 in final with 15 tube modulator system with "band pass" Completed.

7-19-52
The antenna was changed to a 30' tower at across it; 3RD suggested cutting it into cubes for "sleeping stance". ARC (Knoxington) is another new one, uses an 887 with about 20 watts and p.p. 806 in final. It has a 100' tower and runs at 3200 and 1500 hours each day. SVM has put in an appearance on the band with a mobile rig consisting of an Arnold receiver to an X32, using a 100' tower and a 30' antenna. The antenna is a 10' whip. Received a letter from the super here to have a antenna on top of car. Has worked a few of the locals. 3XA has fitted a discriminator to "Super" and has been running very well. They are increasing their band width for best quality. 3BD busy on u.s.c.w.e.r. using grounded grid rf stage, etc.

Fred - WAG at Avenel - writes on 50 Mc. up to 100 watts. He has a 100' tower. DUB - 50 Mc. SAPP and myself. Communication is 100 per cent.

in phone to know all of us at all times. IAPP is very keen. He has tried several converters, latest one seems pretty good. He runs 15 watts to an 807 and three element beam on 40 Mc, 3.5 Mc. He says on the receiver. He is receiving Melbourne signals now. 3DW is still putting out very few signals from 18 watts and 3U7 has been working 3VL, 3HK, 3ARA and 2CP including duplex with 3VL. Alan would like more stations to call on c.w., then use phone if signals are OK. His line noise is very high and c.w. goes through it better. We also request that Melbourne stations give their call signs on 100 per cent. mod.

Main activity in VR4 centres in preparation of gear for 144 Mc 5W2s are well in the forefront as transmitters and a good few of the receivers also. 4HR, 4MY and 4XG all erecting six element beams for 144 Mc. 'QD' section as described in the Handbook. The W.M. gang are looking forward to the 1st Day on the 1st June. The 4M and 4S are opening of the band with 4CU and 4T. 4SR is also operating from Mt. Kinnock, Troosnooms, 4XP from Springbrook and 4XD and 4ZU from Maleny. 4XG will use a six element array on 144 Mc. 4ZU a

your element on 50 Mc. and a sixteen element on 144 Mc. ART busy converting his 632 transmitter to 50 Mc. Has fitted a pre-amp for a crystal in the phone but is having a little feedback trouble. SKL has a 1000 watt 1600 cycle oscillator and a 1000 watt 5000 cycle unit going as a receiver. Getting elements together for a beam. 42U just finished a dual converter unit for 50 and 144 Mc. The thing feels like a 1000 watt unit. Not quite well. Owners of the 552A who are having trouble contacting are advised from transmitter couplings, etc. avoidid remember that a little heat applied to the screw area makes the job much easier. Even the base of the E ground screw. 42U has a 1000 watt 5000 cycle unit in the room-in. According to ART who has tried it.

From VK5QR.—Apologies to 3QO from VK5 gung for not writing, but activity is at low level here in VK5 at the moment.

From VK6LW--Very little to report this morn-
ing (only slightly) and increasing interest among
country stations. GFC at Mindim (118 miles) still
putting in good signals at night, but believe his
rig is to be returned to HQ, also at Mindim. Brown
and I will make a trip to Mindim in a few days.
Several attempts made during Easter holidays to
make contact from Gnowangerup to Perth, 410 mi.
Mindim, Mashup by VK2, 8, 4, 6, 7 ZL but
apparently no 7L--certainly no signals (11W's) re-
portable at Northern worked back to 4M at Cat-
lewie, a distance of 80 miles. Strengths 5 and 7;
and the reports. Believe several late waiting to
be on 44 Mc with SCRS45. Water is cheap, and
and don't beat the gun. Remember May 1, no
April 80.

By the time these notes (by Bill Hawley) are published the old ICG Manual will be finished with, but not forgotten as the game will have pleasant memories of the good times that you had on the old spot and will leave it with a touch of regret. It is a pity that the old spot is no longer what it once was. The old spot is now a very nice spot and the old spot is now a very nice spot. The old spot is now a very nice spot and the old spot is now a very nice spot.

Operation on the same in 86 Hz even right into the 100 MHz range and always even a station giving its own frequency. SADF being the very first to do so in 1942, four stage VHF rig with a class C CNT modulator on to a portable WAVE, the receiver is one using a f.o. two stage grounded grid pre-amp using EL84's, which lift anything from 81 to 89.

[illegible]

[Interest is still maintained in 160 M by the Adeline boys where the latest recruits to the band are 5AF, 5CB and 5DA, all are using CW5 mod. and plus a mixture of long wires, dipoles and ground plane antennas. AD's super receiver provides too many headaches, better wait for 144 Mt. Johnny 2NP informs that there are scores of VK2 stations sitting on the fence waiting to head in on 1st May. Incidentally, both 2NP and 2KJ will be down South again, probably with the QTH at Laverton

In view of the shift to the 144 Mc. spectrum, it is considered by many that something drastic concerning the type of aerial polarization for this band is in order. It is suggested that the standard be avoided cross polarization, or to put it plainly, have everybody to start operations on the new band with a vertical antenna. This is not to say that the existing results. The "Galley-Poll" is a vast, unexplored area. The VES is quite unanimous as to horizontal polarization, and judging by the change-over from the VES to the 144 Mc. band, it is probable that the VES is correct. It seems to be the logical step to use horizontal as it provides greater discrimination against amateur stations in the 144 Mc. band. The VES is also in favor of lower frequencies. Still, it is a matter of location and experimentation, and that is what we are here for, so we hope for co-operation from the International groups in deciding what standard is to be used.

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another prospect for 50 Mc. at present 2CWing
all band receiver. 2AP will be active soon, with
mighty QRP job, has worked all VK, ZL, and AR2
with 1k watt.

2JK on building was up with 4.3 final heard
testing on 7 Mc. and at 1 troubled with line noise
UN also with new outfit, on phone shortly 22A
at present in VRC and absence noted on 7 Mc
2ND building rotary for 28 Mc. 2G) and 2Y0
both on 8.5 Mc., the latter troubled with power line
QRN, station power station (a.e type) 22P
occasional utter on 7 Mc. 2ATs have new 40 ft
"A frame mast" At 818 at 14 Mc. Notes to
2PA + Purr Macquarrie below

NEWCASTLE AND DISTRICT

2832, with two way work on 166 with Sydney and Singleton, congrats Dave, nice going. 2AH4

has a fine W.A.C. on 12 Mo. in 50 minutes and 107 countries confirmed just now, they are in for a DX CC certificate. 24 has the coveted W.A.S. The above two are putting the cat out on the bags. 27F has some 50 contacts and looking for more. 34GD, 34AG, 34GY, 34FP and 20W snap up one DX call show through. The boys will be forming a radio club in Newcastle shortly.

COALFIELDS AND LAKES

2BK working 14 and 24 Mc getting out up for 70 Mc, throwing 14-megaton rotary on 24 Mc, 2BK out of bathing for 24 Mc WAA Vermont and Delaware via 24 Mc and activity. 2BK much the same breathless on 24 Mc. AT and PZ cheering. 24 Mc What about these beams? 24 Mc keeps an eye on 30 Mc getting started at 160 and 24 Mc doing 160 Mc. 24 Mc put out at 160 Mc. 24 Mc AT playing with 24 Mc beams, on 14 and 14 Mc and sometimes on 24 and 24 Mc. 2BK heard 24 Mc AT leaving for 14 Mc. 24 Mc 50 Mc. 2BK on 50 and 160 Mc. 2BK doing night work on 24 Mc with beam. 24BK doing on 24 Mc. 2BK welcome to 50 Mc. 2BK already on 24 Mc beams. 24BK on 24 Mc beams. 24BK recently

WESTERN ZONE

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Journal of Animal Ecology, **74**,
1001–1010

SOUTHERN ZONE

2ANQ (ex ANQ) on air with R.P. 600A and looking
for C.R. contact on W. 24APN with 2-
3 maps - including Fredericks and 100 watts on
214 as a neuromer, should be active soon. 2QE
therefore to be active again having new gear and
using feather duster 20J doing stark renovations
and general cleaning up around visitors in Jude
246H 24Q 24R 24T 24U 24V What about
24W 24X 24Y 24Z 24AA trying to complete
power house - check 24B located amid brown
ORM we understand

[illegible]

VICTORIA

Members of the Victorian Division in attendance at the March general meeting were fortunate in having the pleasure of meeting Mr Ted McCarthy (VK1AA) and Leading Telegraphist Skinner, of the Warrt Kurrp which recently returned from the National Antarctic Expedition.

Mr Ted McCarthy was called upon, after introduction, to recount some of his experiences during the expedition and after pointing out the difficulties of operating on the Amateur bands from the vessel expressed pleasure of the contacts made. Some impressions from the scientific angle, a particular reference to icebergs and icefloes, proved of intense interest to his audience.

An interesting sidelight was a preview to members of the QSL card with which, Mr. McCarthy will confirm his contacts, the card being attractively printed with the crest of the Wyatt Farm in full color and will, without doubt, be a fine record of contact with a voyage of National interest.

In the President's absence on holidays over the Easter period, Mr. Harry Kinnear (VR3KN) took the chair to another fully crowded meeting and was happy to welcome and entertain the ladies also in Mr. John Moyle (VR2ZU), visiting from S.W., and Mr. Luke Lucas (VK1L) over from S.A.

Much enthusiasm has been shown at recent meetings of suggestions re the holding of more social gatherings throughout the year and the formation of a Social Activities Committee was felt to be desirable to organize such dates. Two members, Mr. J. Moncar (SLN) and Mr. E. Mondragon (SABV), were nominated and accepted for this Committee and have power to elect.

Mr. Glover, reporting on T.A.C. activities, outlined the progress of the new installations to the secretary at the Institute and asked him to forward the invitation for willing helpers to further assist in completion of this project. It was announced by Mr. Glover also that the installation of two sets of transmitting apparatus was planned for covering other bands as well as the present frequency in use.

The Q&A officer has expressed his appreciation of the co-operation of members in collating their cards before handing in for disposal as this facilitates the handling and distribution of the many hundreds sorted.

T.A.C MEETING NIGHTS

It is noted that the Yekama Advocacy Committee of the Victorian Division of the W.I.A. also met up at the last full Room at the Queen Street Mother and regularly throughout the month.

All members and visitors are cordially invited and welcome to attend these meetings.

With many technical discussions and demonstrations take place. Meeting nights are as follows:—

1st Tuesday: Practical Work
2nd Wednesday: V.H.P. Group
3rd Tuesday: I.A.C. General Meeting
4th Tuesday: Practical Work
4th Wednesday: Reserve Group
5th Tuesday: Practical Work

VKSWI will announce the program for these individual meetings in forthcoming broadside.

T.A.C. ACTIVITIES

V.H.F. Group. Reports on the field day, held on the 7th March, were presented and discussed. The main business of the meeting, a discussion on V.H.F. 400-450 was then proceeded with. Of particular interest were problems connected with maintaining the directiveness of a directive antenna over the whole of the frequency range of the 50 db. band.

T.A.C. General Meeting—Younger other business dealt with was in approval of the purchase of the following books for addition to the reading library:

The above-mentioned are various periodicals published in foreign languages. Much of the material is of course probably would be suitable for publication in "American Review." Those Americans who have sufficient knowledge of Italian, Spanish, Italian or other languages and could prepare brief extracts of the above or prepare articles should, if available for his work, contact T.A.C.

Practical work at present being carried out by F.A.C. includes the construction of a Laboratory Workbench with facilities for a wide range of tests. Members wishing to assist in this work will be very welcome.

EASTERN ZONE

The Eastern Zone lock up is now on a spot frequency of 3650 KHz. on Sundays at 2000 hours. The Eastern Zone side link has been up and makes it a little bigger. JWE is punching nearly on 100 watts. Bill says that on the cold weather is approaching. He is going remote control by the fire side for the coming month. 30% is very heavy settling down (

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expected to send Adelaide and its suburbs a cold-kill to the human community. The history of South Australia. The consequent damage to amateur shacks, equipment, aerials, etc., to my nothing of the interruptions to transport, communications, and public utilities has left everybody feeling like a limp rag. The southeast naturally felt the full strength of the blow, and we were at Alice last night had a very close shave for three nights. I have been washed out of my shack, and believe it or not, in this year of our Lord 1948, I am attempting to write these notes between the feeble glimmers of a hurricane lamp.

To fill my cup of bitterness to the brim, I have been told that during the last night (XVI) of 5MD is looking for my blood for writing a paragraph regarding the dirty dishes in the sink upon my return from hospital. This has cut me out of the quick and I hasten to apologise, and to make publicly that I have checked up on my source of information and I find that the said paragraph was indeed a lie. I offer my sincere apologies. I find that the kitchen sink was definitely not full of dirty dishes as there was still room for a cup and saucer. Having now, I feel sure, been restored to Mrs. Bartlett's good books by my abject apology, I can attempt the compilation of these notes with any convenience, so here goes.

The monthly general meeting for April was held at 17 Weymouth Street to a capacity gathering when Mr. W. G. Gilbert gave a very interesting and instructive lecture on "Circuit Transmutation". The lecture was very well received and a vote of thanks, proposed by Mr. Ross Avey (5AJ), was received with acclamation by all present. Among the visitors were Messrs. Oly, George, Turner, R. Farrington (5TA), J. D. Nourse (5DQ), and Graham Pitts (5OF).

Ross Harris (5FL) spoke on disposal matters and Hans Austin (5AW) discussed the recent conference in Melbourne. The meeting was then closed with everybody having spent an interesting evening.

Ray Harris (5BR), who has been handling 5WI so capably, tendered his resignation from 5WI which was accepted with regret, and in future Hans Austin (5AW) will be in charge of the W.A. Sunday broadcasts from his QTH at Rose Park.

Reports of the hurricane damage to aerials continue to come in and the having list is as follows: 5MO, 5RX, 5BR, 5XO, 5LD, 5AJ and 5LW are a few of the names minus a skywire.

A Nava Frigate, the "Baroco" was washed ashore during the aforementioned hurricane and finished up a mile or so from the QTH of 5PS. I wish to deny the rumour started by 5AW that the ship was stranded by the sea for a couple of miles by an ante signalman from the "Baroco" because he tried to talk the said signalman into selling the radio gear aboard as disposal equipment.

Nellied that Geo Raseby (5BE) was absent from the general meeting, apparently was soaking up the sunbather in the sunbather for a session of 5D. "He rumoured that he has joined the ranks of the truck drivers on the road between Melbourne and Adelaide and is known as 'Battler' Raseby to his comrades of the road. With a smile on his lips and a curve in his heart, he lets nothing pass him and always gets his truck in on time.

George Ramsay (5GD) is reported on the sick list with a very heavy cold, in fact at one period complications were feared. As on the road to recovery now, I hear, and probably next time he adjusts his beam in the cold chilly air he will remember this bout of sickness!

Joe McMillan's enthusiasm for the W.A. led him to rise at 4 a.m. on Sunday, 14th March, with the intention of visiting the local Ham at Radnor and passing on the last-life good wishes. Leaving at 4.15 a.m. Joe, the XVI and the harmonica had a very pleasant trip in the brisk morning, and as there was no desperate hurry, the time of arrival was not as late as the 5WI broadcast. The first call was to Darcy Hancock (5BR), but a notice on the back door "no milk today thanks" told its own story. Anyway, after making a few enquiries, the elderly Joe Walbridge (5XJ) was found and fortunately just in time to catch 6UX, plus Darcy himself and his XYL about to depart in the trusty 5WI. Joe was warmly welcomed, and after a cup of tea it was suggested that as there was a bit of a do over at Crystal Brook, what about all going over and visiting the other Hans. Having listened to the 5UX (5XJ) receiver and not heard any VKU signals, the party started for Crystal Brook.

The third indication of "CB" was the huge aerial mast of 5CK (one of these common broadcasting stations). Passing through the town the party came to the creek bed, near the background and found a party of Hans gathered. The first was Malville (5V), C. A. Doddridge (5OD), H. Hodgson (5AP), and quite a number of unidentified personalities. What with XLY, XTLA, harmonica, and visitors it was a grand gathering, and lunch took a hour time because it is hard to talk and eat too. Joe passed on all the Adelaide gossip, and made a note of all the country doings (for which I thank him). Len Muller (5VM) took a photo of the gathering with his huge camera (tripod, red cloth and all) giving quite a torridor act with the red cloth, with the evident idea of making the gang look pleased. How successful he was we will only know if we see a photo, so what about it Len?

The next visit was to 5CK to look over the various interesting pieces of equipment installed there. Then the party went to the shack of 5YM and Len has a fine set-up, rack and panel style, but what intrigued everybody so much was a complete shower over the rig. Apparently Len was in such a hurry to get on the air that he forgot to a sponson the bathroom. Anyway it makes an extra good water cooling system (5BE please note). The day was now drawing to a close and Joe was amazed to note how the time had flown. A little trouble with the petrol feed delayed the departure, but some soap and a little rag soon fixed it up OK. The lights of the city were sighted about 1330 a.m. and some 31 hours had passed by in an incredible short time. Joe and his XYL, plus the harmonica, wish to thank all the folk who helped to make the day such a happy one, and they all hope that it will not be long before they all meet again. The fact that Joe sat out to do a trip of 160 miles and finished up doing 590 miles speaks for itself. The benefit to the W.A. was enormous, as it shows the country member that he means as much to the Institute as anybody else, and Joe is to be congratulated on his foresight and in this case.

A new receiver is under construction at 5RZ although if the conditions are always as bad as they were on 14th March, more than a new receiver will be wanted to pick up any VKU signals. Stop Press—According to reliable information two or three magnetic storms in parallel were centred around Kewina that day. No wonder conditions were bad.

Have heard a rumour that Roy Cook (5AC) is due back on the air shortly. Roy is one of the red old-timers, and we all hope that the rumour is correct. Haven't seen you at the meetings lately a.m., what about it?

5FL has a new c.r.o. hooked on to his receiver and this, plus his Bendix frequency meter, enables him to hold all the trump cards when it comes to hunt reports, etc. Some of the Hans take the voice well and others don't. The 'ole is a passing remark about the 5FL hack wave. Personally I am neutral.

No doubt about those school teachers, everything must be so exact, or else. Heard 5BR and 5DZ to contact the other night and after Doug had given Gordon his report three times, Gordon asked him again and Doug finished up spelling it, SEVEN. Then and then only was 5XU satisfied.

The Police Commissioner has acknowledged by letter his appreciation of the splendid assistance rendered by Amateur Radio as a means of communication during the recent bushfires in S.A. Hans only (5LW) was the recipient of the letter (second by the way) but Hans Radio also secured

some useful publicity, and our thanks are due to Ross and "Doc" (5MD) for their fine job.

5HQ is in the process of constructing a 144 Mc. transceiver and as his QTH is Sumnerton, he will be welcomed by the northern suburban boys as a choice bit of DX.

5LR is looking for a cheap windmill tower so as to be able to lift his present 200watt 25 Mc. signal squarer higher in the air. It is doing such a good job almost on the ground that Jack is wondering just how many db points above 80 he will get when it does rise into the air. Anybody able to give some information as to the availability of a cheap tower?

It is not often that a nickname becomes a fact but "Pop" Deane is the exception that proves the rule. The name "Pop" came from the fact that Larnock (5LD) once upon a time had a voice as low

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in place as that noted him chance or "Popeye" the funny man. The arrival of a harmless (a bouxy bounding boy) to the SLD domain makes the "Pop" quite in order. Congratulations to Mr and Mrs. Deane. By the way it was just a coincidence that "Pop" parked his car near to SXU at the recent f&e day (Sorry Gordon but it was too good to let pass.)

You all thought that I had forgotten, "Doc" didn't you? Well I saved it. I believe that he is using too. A better hand as for feeder spreaders. Take my advice and lock your bathroom doors should he visit you, and don't fall for that sales talk he will give you about that "no and so look," "such a d such smile," it is only meant to get you to forget your foot brush in favour of a new one, thereby permitting him to "bite" you for the old one.

General opinion regarding the "Termite" in VK- is that while it is the business entirely of the VKC Council to handle the matter as they think fit it is generally thought that a mistake has been made. "Termite" was doing a good job and it was decided not to remain anonymous and the opinion of a few dis-satisfied Hams should not be allowed to sway the VKC Council's better judgment. With the views of "Honey" Deane in Amateur Radio concerning the two names of "Termite" is required.

To anyone who has seen a day's working at old gatherings where amateurs get together and "rag chew" quite informally, it is becoming increasing noticeable that the present methods of dealing at W.I.A. meetings are falling into dis-favour. I refer to the "introduction," "lecture," "geographical business," and then a few minutes for a get together before saying for home. Whether you like it or not, the attitude at a W.I.A. meeting is a direct line to the speaker. Those who know as much about the subject as the lecturer and there are not a great many at a time who do not understand the lecturer and therefore are also not interested. The remaining few who are interested are in such a minority that they do not count. This does not hold for all lectures, nor a.s. again we get out of the box and everyone is more than interested, but it is becoming an obvious fact that we are in need of a better method at W.I.A. meetings we must give them more time to have an informal rag chew, more time to get together and make such others acquaintance. In so, make it a strategy to a gathering of Hams live at 1215 High Street, W.I.A. please note the date like the gatherings which take place in a large main shack.

What's that you say, how can we do it? Don't ask me, brother, I only write the notes seriously (don't laugh, but I get "something"). If you don't ask or tell me, I can take it, but if you do, I'll ask you, then get up on your feet and tell council members at the next general meeting (and it is only a matter of time) to carry out the wishes of members, but if you don't state your wishes on the floor at the next meeting you can't expect to carry them out. We're in it and I believe as yet.

I had to create this month of attending the inaugural meeting of the Holm Bay Ham Club, held at the Glenelg Town Hall. When I first arrived at the Town Hall there was a steady stream of people making for upstairs, and I followed them like a lamb, mentally telling myself that these Glenelg Amateurs certainly knew how to attract a crowd. Imagine my surprise upon arriving up stairs to find that I cut out upon an anti-aircraft sheltering about to commence. Somehow I managed to creep downstairs, followed by about 200 people, and I was convinced that one "crumme" at the time the "word up." I retired to the rear of the hall and there came upon a chap with a "QTH" in his hand also looking a bit bewildered. It occurred himself to me as SRS and said simply, "I say the man you're Doc Barber aren't you?" (The two of them) the man that appeared to me as apparently staggered him, because he supposed such a few papers and said in an apologetic tone of voice, "You're very old man, but you do look a bit like him" to a tone of voice that I use when landing regular items, three figures or

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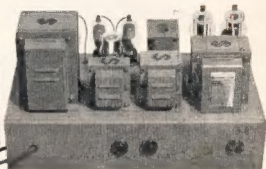
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